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EXAMINER

SUKHAPHADHANA, CHRISTOPHER T

ART UNIT PAPER NUMBER

2625

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,311

Applicant(s)

KOHCHI, TSUKASA

Examiner

Christopher T. Sukhaphadhana

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-16, 26-29 and 32 is/are allowed.
- 6) ☒ Claim(s) 1, 3-9, 17, 19-25 and 30 is/are rejected.
- 7) ☒ Claim(s) 2, 18 and 31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Drawings

1. The drawings are objected to because of misspellings. Consider changing “binalizing” in ref no 203, **Fig 13**, to --binarizing--. Consider changing “binalizing” in ref no S603, **Fig 14**, to --binarizing--. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: Consider changing “preset” on line 5 of **page 28** to --present--. Consider changing “A noise” on the last line of **page 48** to --a noise--.

Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. **Claim 5** is objected to because of the following informalities: Consider replacing “diving” on line 5 of the claim with --dividing--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1, 3, 7, 8, 9, 17, 19, 23, 24, 25, and 30** are rejected under 35 U.S.C. 102(e) as being anticipated by Wang (U.S. Patent 6,360,006 B1, newly cited, "Wang").

7. In regards to **claim 1**, Wang discloses a method (Fig 6) of recognizing a document image including a plurality of areas, comprising the steps of: a) inputting said document image as a digital image (col 8, line 3); b) specifying a background color of said document image (col 10, line 14); c) extracting a plurality of pixels located in areas other than a background area from said document image by use of said background color (col 10, line 45); d) creating a plurality of connected elements by combining said plurality of pixels (col 10, line 65); and e) classifying said plurality of connected elements into a plurality of fixed types of areas by using at least features of shapes of said plurality of connected elements to obtain an area-separated document image (col 11, line 12, and Fig 14).

8. In regards to **claim 3**, Wang further discloses step b) including the steps of: k) clustering a plurality of colors on said document image (col 8, line 46, histogram); and l) setting a representative color of a largest cluster obtained by the step k) to said background color (col 10, line 16, primary threshold binarization area, see also Fig 9).

9. In regards to **claim 7**, Wang further discloses in col 10, line 41, step c) including the step of determining a focused pixel as a pixel located in an area other than said background area if a

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difference between three primary colors of said background color and said focused pixel is larger than a fixed value.

10. In regards to **claim 8**, Wang further discloses the method further comprising the steps of: creating the document image, in which a figure or photograph rectangular area separated by said step e) is painted over with a specified color (Fig 16); binarizing said document image (Fig 16); and recognizing characters on a binary image obtained by binarizing said document image (col 6, line 62).

11. In regards to **claim 9**, Wang further discloses in Fig 17-22 the step of recursively performing said step e) to a specific rectangular area classified at said step e). See especially ref 1810, 1808, 1809, 1910, 2202, and 2204.

12. In regards to **claims 17, 19, 23, 24, and 25**, all the limitations have been addressed in the arguments of claims 1, 3, 7, 8, and 9, respectively.

13. In regards to **claims 30**, all the limitations have been addressed in the argument of claim 1, above.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. **Claims 4 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent 6,360,006 B1, "Wang") as applied to claim 3.

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16. In regards to **claim 4**, Wang further discloses in col 8, line 15, step k) including the step of: clustering the plurality of colors on said document image by use of a plurality of pixel values obtained by smoothing pixels surrounding said each of the plurality of pixels.

17. Wang does not expressly disclose step k) including the step of: sampling each of the plurality of pixels at regular intervals.

18. However, Wang discloses in Fig 7 and col 8, lines 13-29, of preprocessing the image data via averaging the pixels in a 2x2 area where the value of each pixel in the area is replaced with the average value.

19. It would have been obvious to one of ordinary skill in the art at the time of the invention to use only one of the pixels in the 2x2 area, thus sampling each of the plurality of pixels at regular intervals.

20. The suggestion/motivation would be to increase computational efficiency by using only one value to represent all the values in a 2x2 area.

21. Therefore, it would have been obvious to one of ordinary skill in the art to modify Wang to sample each of the plurality of pixels at regular intervals, as specified.

22. In regards to **claim 20**, all the additional limitations have been addressed in the argument of claim 4 above.

23. **Claim 5, 6, 21, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent 6,360,006 B1, "Wang") as applied to claim 3, in combination with Sorimachi (U.S. Patent 5,331,442, newly cited, "Sorimachi").

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24. In regards to **claim 5**, Wang discloses in col 8, lines 13-29, the step of dividing said document image into a plurality of blocks; and obtaining a representative color of each of said plurality of blocks (col 8, line 22, average value).

25. Wang does not expressly disclose the additional limitations as claimed.

26. Sorimachi teaches the method further comprising the step of reducing a size of said document image, wherein said step of reducing a size of said document image includes the steps of: determining colors of said plurality of blocks after sizes of said plurality of blocks are reduced, by comparing said representative color and said background color (col 6, line 20); and reducing said plurality of blocks into the plurality of pixels having said colors (col 6, line 35).

27. Sorimachi and Wang are combinable because they are from the art of identifying features in color images.

28. It would have been obvious to combine Sorimachi's teachings into Wang's method.

29. The suggestion/motivation would be to identify a character area and a half-tone area in a composite document with high accuracy (Sorimachi, col 3, line 58).

30. Therefore, it would have been obvious to combine Sorimachi into Wang to obtain the invention as specified in claim 5.

31. In regards to **claim 6**, Sorimachi and Wang do not expressly disclose each of the plurality of blocks being a 3x3 or 4x4 grating.

32. However, Sorimachi discloses blocks of 2x2 area as sub-blocks of an 8x8 block (col 6, line 11).

33. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a 4x4 grating in lieu of Sorimachi's 2x2 area.

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34. The suggestion/motivation would have been to reduce computational complexity by dividing the 8x8 block into fewer areas (namely, 4 instead of 16).

35. Therefore, it would have been obvious to modify Sorimachi and Wang to obtain the invention as specified in claim 6.

36. In regards to **claims 21 and 22**, all the additional limitations have been addressed in the argument of claims 5 and 6, respectively.

Allowable Subject Matter

37. **Claims 2, 18, and 31** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

38. **Claims 10-16, 26-29, and 32** are allowed.

39. The following is an examiner's statement of reasons for allowance: In regards to independent **claims 10, 26, and 32**, none of the prior art of record teaches or fairly suggests at least "comparing a result of said color area separation and a result of said binary area separation" (as claimed in claim 10, and similarly in claims 26 and 32) in combination with the other limitations. The closest prior art of record Wang (U.S. Patent 6,360,006 B1) does not teach or fairly suggest this limitation as claimed. **Claims 11-16 and 27-29** contain allowable subject matter at least by dependency on claim 10 or 26.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is (703) 306-4148. The examiner can normally be reached on 9a-5p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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